

**Before The
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001**

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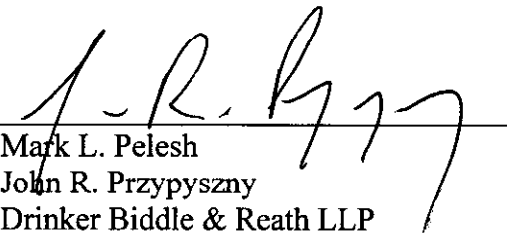
Docket No. R2000-1

**RESPONSE OF ASSOCIATION OF AMERICAN PUBLISHERS
WITNESS STEPHEN SIWEK TO INTERROGATORIES AND
REQUESTS FOR PRODUCTION OF DOCUMENTS OF
THE UNITED STATES POSTAL SERVICE
(USPS/AAP-T2-12-13)**

The Association of American Publishers hereby provides the responses of witness Stephen Siwek to the following interrogatories of the United States Postal Service: USPS/AAP-T2-12-13, filed on June 23, 2000.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,



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**RESPONSE OF ASSOCIATION OF AMERICAN PUBLISHERS
WITNESS STEPHEN SIWEK TO INTERROGATORIES AND
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USPS/AAP-T2-12.

Please refer to your response to USPS/AAP-T2-1 and your testimony at page 18, lines 14-15, upon which that question was based.

- (a) Please define the term “bias” as you have used it and provide a citation for your definition.
- (b) Please describe in detail under what conditions measurement error results in bias.
- (c) Please provide an academic citation supporting your response in (b).
- (d) Please describe in detail under what conditions measurement error will not result in bias.
- (e) Please provide an academic citation supporting your response in (d).
- (f) Please explain in detail why the measurement error associated with the stratum four inflation factors meets the conditions described in (b).
- (g) Please explain in detail your belief as to the likely effects of any such measurement error in terms of direction and magnitude of the bias for each of the estimates provided in LR-1-109.

RESPONSE

- a) In defining “bias” as used in my testimony, I am referring to a situation in which an estimator μ^* , that is given by a sample plan, can be said to provide a biased or unbiased estimate of some population characteristic μ . As assumed in my testimony, an estimator μ^* of μ given by a sample plan is called unbiased if the mean value of μ^* taken over all possible samples provided by the plan, is equal to μ . See Cochran, William G., *Sampling Techniques*, Third Edition, John Wiley & Sons, 1977, page 11.

- b) As noted above, measurement error results in bias when the mean value of an estimator that is given by a sample plan taken over all possible samples is not equal to the population characteristic that is being measured.
- c) See Cochran, William G., *Sampling Techniques*, Third Edition, John Wiley & Sons, 1977, page 11.
- d) Measurement error will not result in bias when the mean value of an estimator that is given by a sample plan taken over all possible samples is equal to the population characteristic that is being measured.
- e) See Cochran, William G., *Sampling Techniques*, Third Edition, John Wiley & Sons, 1977, page 11.
- f) The report implicitly assumes that total revenue is a function only of the total number of pieces, without any consideration for the composition of pieces and their characteristics, and that the relationship is the same for all strata. Without taking into consideration these additional factors, the estimate for the total number of pieces in strata four would not converge to the true population value. See my responses to USPS/AAP-T2-1(a) and USPS/AAP-T2-1 (b).
- g) As stated in my response to USPS/AAP-T2-1 (b), I believe that the inflated volumes in LR-I-109 include an added component that reflects measurement error. I believe that this added component is proportional to the difference between the actual and estimated volume inflation factors that were used. However, I do not have an opinion as to the likely direction or magnitude of this added component in the estimates provided in LR-I-109.

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USPS/AAP-T2-13.

Please refer to your response to USPS/AAP-T2-2 where you state:

Adjusting 1999 sample pieces with 1998 inflation factors is equivalent to multiplying 1998 national pieces by 1999 sample proportions. This procedure would give an unbiased estimate of 1998 totals for a given category only if the 1999 population proportions were identical to the 1998 population proportions. In practice, one would expect that there are year-to-year variations in the distribution of pieces so that the 1999 ratios are proportional to the 1998 ratios plus a deviation or error term. This deviation, which accounts for year-specific factors, would not disappear with alternative draws of the 1999 survey.

- (a) Please confirm that if the expectation of the deviations of 1999 pieces from 1998 pieces is zero and these deviations are independent, using 1998 pieces to inflate the sample will not result in bias.
- (b) If you confirm (a) please describe in detail why the expectation of the deviations of 1999 pieces from 1998 pieces “would not disappear with alternative draws of the 1999 survey.” That is, provide the basis for your argument that the expectation of these errors is not zero or that the errors are not independent.
- (c) If you do not confirm (a), please describe in detail why the situation described in (a) is not true.

RESPONSE

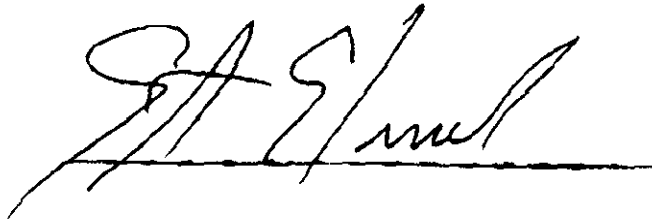
- (a) Confirmed.
- (b) The expected value of the deviation between the 1999 and the 1998 population proportions would be zero only if one is willing to assume that there is an underlying distribution for the proportions which is constant over time and that both years can be taken as independent draws from such underlying distribution. I believe that this is not the case. Mailing proportions do evolve over time in

response to systematic components, so that the underlying distribution for the 1999 population proportions is different from the 1998 distribution.

- (c) Please see my response to (a) above.

DECLARATION

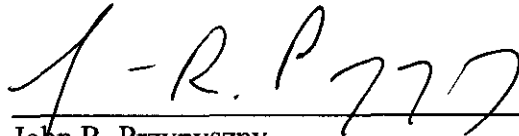
I, Stephen Siwek, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read 'S. Siwek', is written over a horizontal line.

Dated: July 12, 2000

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.



John R. Przypyszny

Washington, D.C.
July 12, 2000